

CLAIMS

1. A miniature device comprising:
a body having a reaction chamber disposed therein;
a resistive heater electrically connected to a power source for
5 applying power to said heater;
a temperature sensor disposed on a surface of said body for
determining a temperature within said reaction chamber; and
an appropriately programmed computer for monitoring said
temperature and operating said power source to selectively apply said current
10 across said heater.
2. The miniature device of claim 1, further comprising a second
reaction chamber fluidly connected to said reaction chamber.
- 15 3. The miniature device of claim 2, wherein said second reaction
chamber comprises a microcapillary electrophoresis device.
- 20 4. The miniature device of claim 2, wherein said second reaction
chamber has an oligonucleotide array disposed therein, said oligonucleotide
array including a substrate having a plurality of positionally distinct
oligonucleotide probes coupled to a surface of said substrate.
5. The miniature device of claim 1, wherein said body comprises at
least first and second planar members, said first planar member having a first
25 surface and a well disposed in said first surface, said second planar member
having a second surface, said second surface being mated to said first surface
whereby said well forms said cavity.
6. The miniature device of claim 5, wherein said temperature sensor
30 is deposited on said second surface wherein when said second surface is mated

with said first surface, said temperature sensor on said second surface is positioned within said cavity whereby a temperature at said temperature sensor is substantially the same as a temperature within said cavity.

5 7. The device of claim 1, wherein said reaction chamber has a volume of from about 0.001 μl to about 10 μl .

 8. The device of claim 1, wherein said reaction chamber has a volume of from about 0.01 μl to about 1 μl .

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 9. The device of claim 1, wherein said reaction chamber has a volume of from about 0.05 μl to about 0.5 μl .

 10. The device of claim 1, wherein said temperature sensor comprises
15 a thermocouple having a sensing junction positioned adjacent said cavity, and a reference junction positioned outside of said cavity, said thermocouple being electrically connected to a detector for measuring a voltage across said thermocouple.

20 11. The device of claim 10, wherein said detector for measuring a voltage across said thermocouple measures a DC voltage.

 12. The device of claim 10, wherein said thermocouple comprises a first gold film adjoined to a chromium film as said sensing junction and said
25 chromium film adjoined to a second gold film as said reference junction.

 13. The device of claim 1, wherein said resistive heater comprises a chromium film and said electrical connection comprises two gold leads overlaying said chromium film and being electrically connected to said power
30 source.